

Amendments to the Claims:

1. (Currently Amended) A set of digital antibodies, wherein the set comprises at least about 15 digital antibodies, wherein each of the 15 digital antibody antibodies has been characterized to bind specifically to binds a different epitope, ~~and wherein each digital antibody binds an epitope~~ consisting of 3 or 4 consecutive amino acids, ~~or 4 consecutive amino acids~~, and wherein each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds.
2. (Original) The set of digital antibodies according to claim 1, wherein the set comprises 100 digital antibodies that bind epitopes consisting of 3 consecutive amino acids.
3. (Original) The set of digital antibodies according to claim 2, wherein the set further comprises 100 digital antibodies that bind epitopes consisting of 4 consecutive amino acids.
4. (Original) The set of digital antibodies according to claim 3, wherein the set further comprises 100 digital antibodies that bind epitopes consisting of 5 consecutive amino acids.
5. (Currently Amended) The set of digital antibodies according to claim 1, wherein the set comprises at least about 20, 30, 40, 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700 800, 900, or 1000 digital antibodies.
6. (Original) The set of digital antibodies according to claim 1, wherein the set comprises at least 1000 digital antibodies that bind epitopes consisting of 4 consecutive amino acids.
7. (Original) The set of digital antibodies according to claim 6, wherein the set further comprises at least 100 digital antibodies that bind epitopes consisting of 5 consecutive amino acids.
8. (Original) The set of digital antibodies according to claim 7, wherein the set further comprises at least 100 digital antibodies that bind epitopes consisting of 3 consecutive amino acids.
9. (Original) The set of digital antibodies according to claim 1, wherein the digital antibodies are immobilized on a surface.
10. (Original) The set of digital antibodies according to claim 4, wherein the digital antibodies are immobilized on a surface.
11. (Original) The set of digital antibodies according to claim 9 or 10, wherein the surface is an array.

12. (Currently Amended) A method for generating a protein binding profile of a sample comprising a plurality of different proteins, said method comprising:

(a) contacting said sample with a set of digital antibodies, ~~according to claim 1~~ under conditions that permit binding, wherein the set of digital antibodies comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds;

(b) optionally removing an unbound protein; and

(c) detecting binding of protein to said digital antibodies, whereby a protein binding profile of the sample is generated.

13. (Original) The method of claim 12, wherein the method further comprises the step of treating the sample with a protein cleaving agent prior to step (a) of contacting the sample with the set of digital antibodies under conditions that permit binding.

14. (Currently Amended) A method for generating a library of protein binding profiles for two or more different samples each of which comprises a plurality of proteins, said method comprising:

(a) contacting a sample with a set of digital antibodies ~~according to claim 1~~ under conditions that permit binding, wherein the set of digital antibodies comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds;

(b) optionally removing an unbound protein;

(c) generating a protein binding profile of the sample being tested by detecting binding of protein to the digital antibodies, whereby a protein binding profile is generated; and

(~~e~~) (d) repeating steps (a) through (c) with at least two samples.

15. (Original) The method of claim 14, wherein the method further comprises the step of treating the sample with a protein cleaving agent prior to step (a) of contacting the sample with the set of digital antibodies under conditions that permit binding.

16. (Original) A library of protein binding profiles, wherein the library is prepared using the method of claim 14.

17. (Currently Amended) A method for characterizing a test sample, ~~said methods~~ comprising:

(a) ~~contacting the test sample with the sets~~ a set of digital antibodies ~~according to claim 1~~ under conditions that permit binding, wherein the set of digital antibodies comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds;

(b) optionally removing an unbound protein;

(c) generating a protein binding profile of said test sample by detecting binding of protein to the digital antibodies, whereby a protein binding profile is generated; and

(d) comparing the generated protein binding profile of the test sample with ~~the~~ a protein binding profile of a reference sample, ~~whereby the test sample is characterized by the comparison to~~ characterize the test sample.

18. (Canceled)

19. (Currently Amended) A method for determining presence or absence of a bacteria, virus, or cell in a test sample, said method comprising

(a) ~~contacting the test sample with a set of digital antibodies according to claim 1~~ under conditions that permit binding, wherein the set of digital antibodies comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds;

(b) optionally removing an unbound protein;

(c) generating a protein binding profile of the test sample by detecting binding of protein to the digital antibodies, whereby a protein binding profile is generated; and

(d) comparing the protein binding profile of the test sample with ~~the~~ a protein binding profile of a reference sample, whereby presence or absence of the bacteria, virus or cell in the test sample is determined by the comparison.

20. (Canceled)

21. (Currently Amended) A method for diagnosing a disease condition in an organism ~~identifying a bacteria, virus, or cell~~, said method comprising

(a) contacting ~~the~~ a test sample from said organism with a set of digital antibodies ~~according to claim 1~~ under conditions that permit binding, wherein the set of digital antibodies comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds;

(b) optionally removing unbound protein; and

(c) ~~detecting binding of protein to antibodies, whereby~~ determining a protein binding profile for the test sample. is generated; and

~~(d) comparing the protein binding profile of the test sample with the protein binding profile of a reference sample, whereby the bacteria, virus or cell in the test sample is determined by the comparison.~~

22. (Canceled)

23. (Currently Amended) A method for identifying a test protein in a sample, said method comprising

(a) contacting a sample comprising or suspected of comprising the test protein with ~~the~~ a set of digital antibodies ~~according to claim 1~~ under conditions that permit binding, that comprises at least about 15 digital antibodies, wherein each of the 15 digital antibodies has been characterized to bind specifically to a different epitope consisting of 3 or 4 consecutive amino acids, and each digital antibody recognizes a plurality of distinct and different proteins that comprise the same epitope to which the digital antibody binds; and

~~(b) optionally removing unbound protein;~~

(e-b) determining the identity of the test protein by detecting presence or absence of binding of the test protein to the set of digital antibodies in the set, wherein at least about three six digital antibodies bind the test protein; and wherein presence of binding indicates presence of at least about three six epitopes in the test protein, wherein the identity of the at least about three six epitopes is used to identify the test protein.

24.-30. (Cancelled)

31. (New) The method of claim 21 wherein the disease condition is a viral infection or bacterial infection.